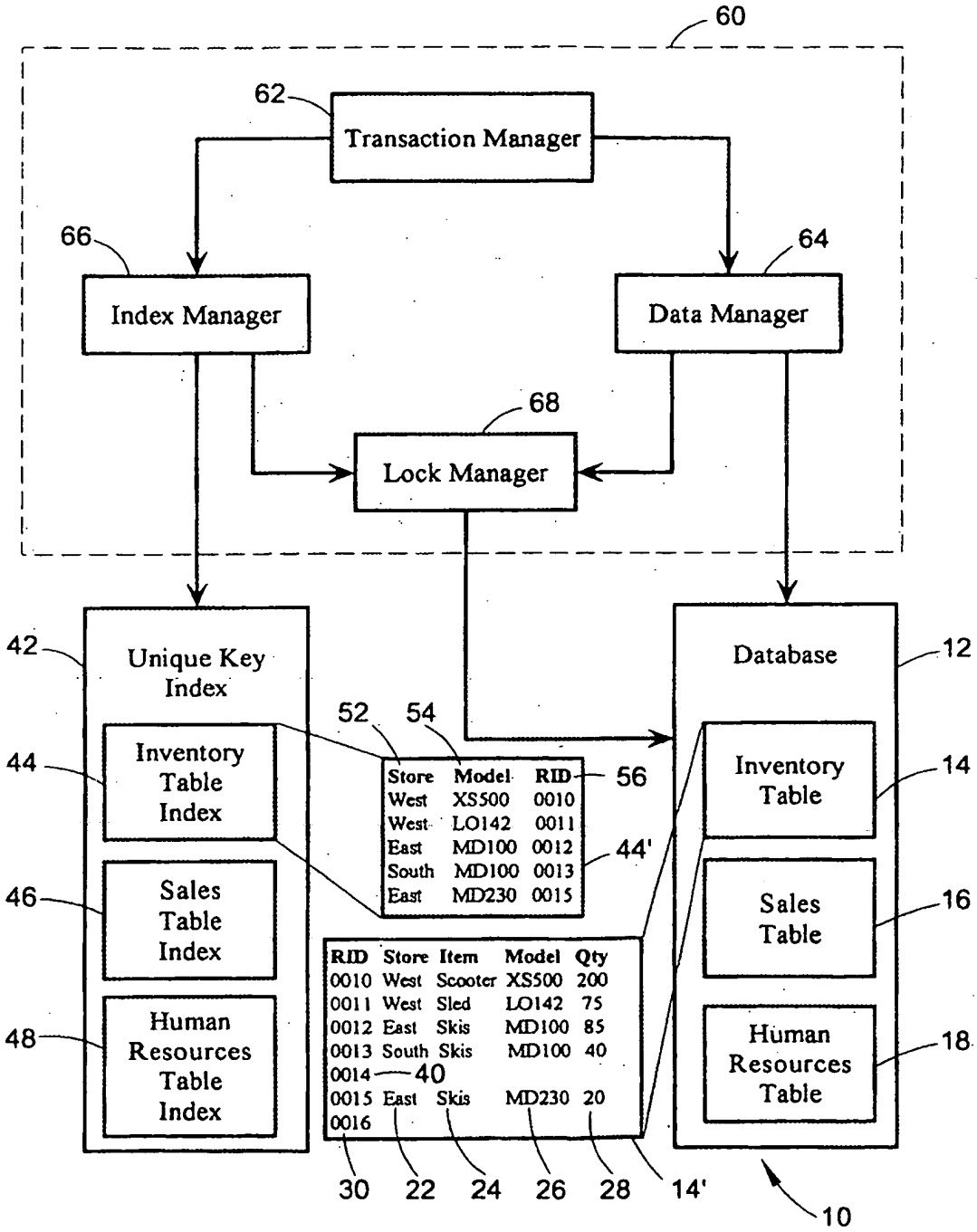
60
62
Transaction Manager
66
64
Index Manager
Data Manager
68
Lock Manager
42
Unique Key Index
44
Inventory Table Index
46
Sales Table Index
48
Human Resources Table Index
52
54
Store Model RID
West XS500 0010
West LO142 0011
East MD100 0012
South MD100 0013
East MD230 0015
56
44'
RID Store Item Model Qty
0010 West Scooter XS500 200
0011 West Sled LO142 75
0012 East Skis MD100 85
0013 South Skis MD100 40
0014
40
0015 East Skis MD230 20
0016
30
22
24
26
28
14'
Database
12
Inventory Table
14
Sales Table
16
Human Resources Table
18
10

FIG. 1

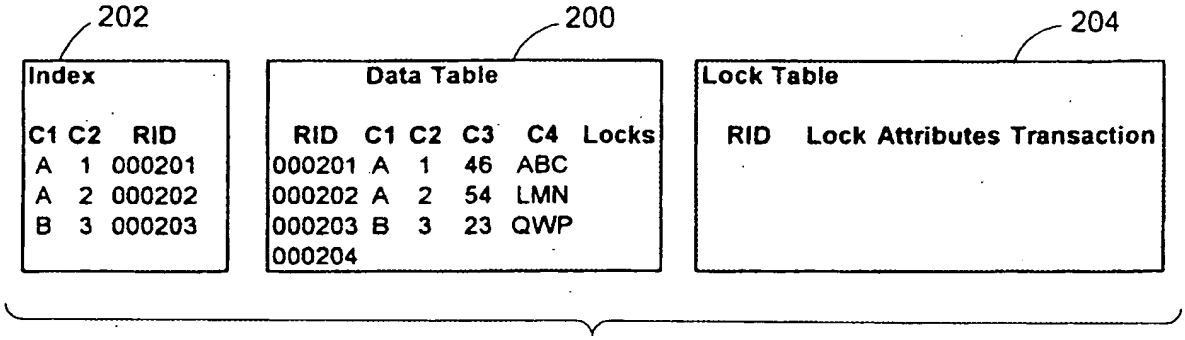

FIG. 2(A)
(PRIOR ART)

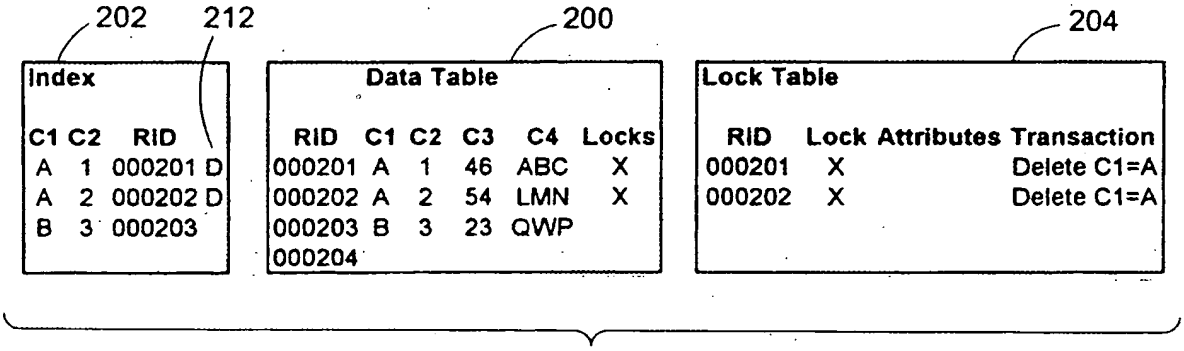

FIG. 2(B)
(PRIOR ART)

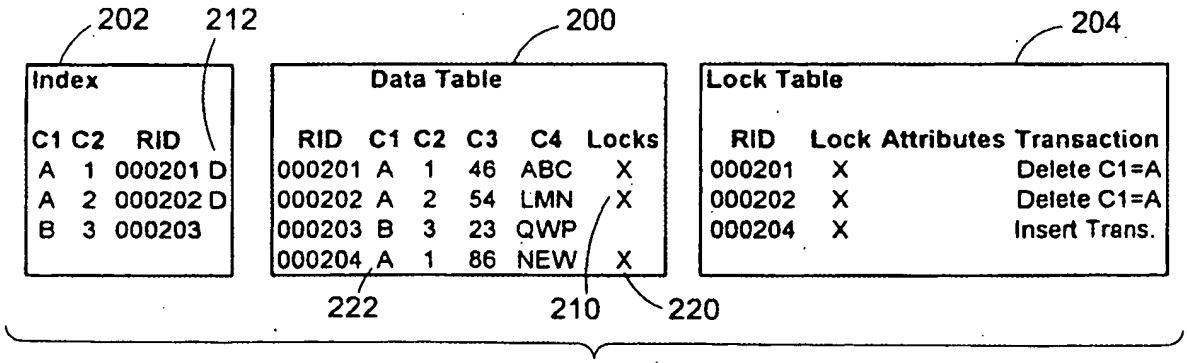

FIG. 2(C)
(PRIOR ART)

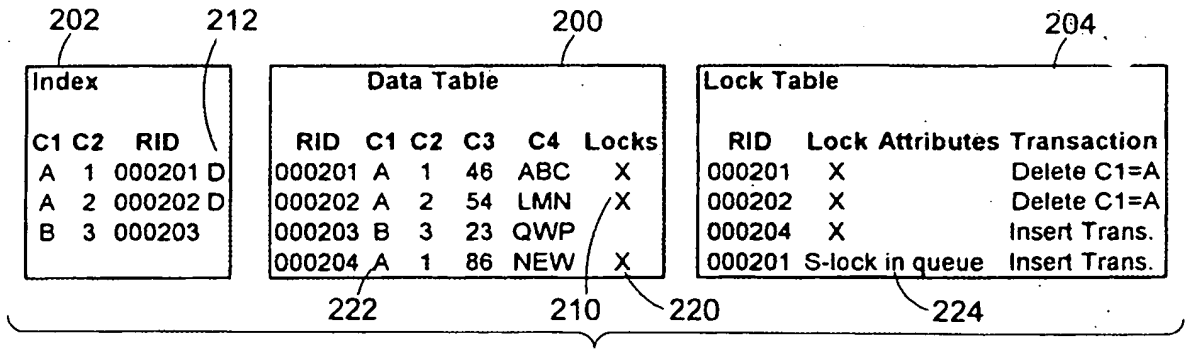

FIG. 2(D)
(PRIOR ART)

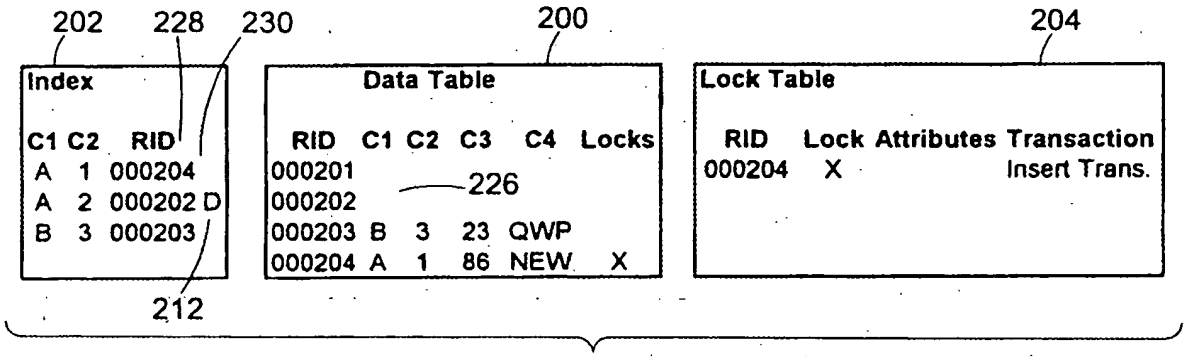

FIG. 2(E)
(PRIOR ART)

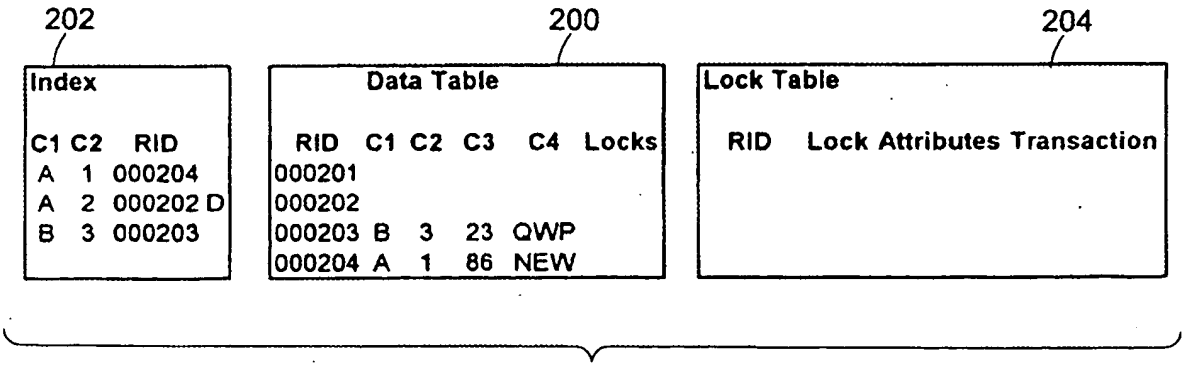

FIG. 2(F)
(PRIOR ART)

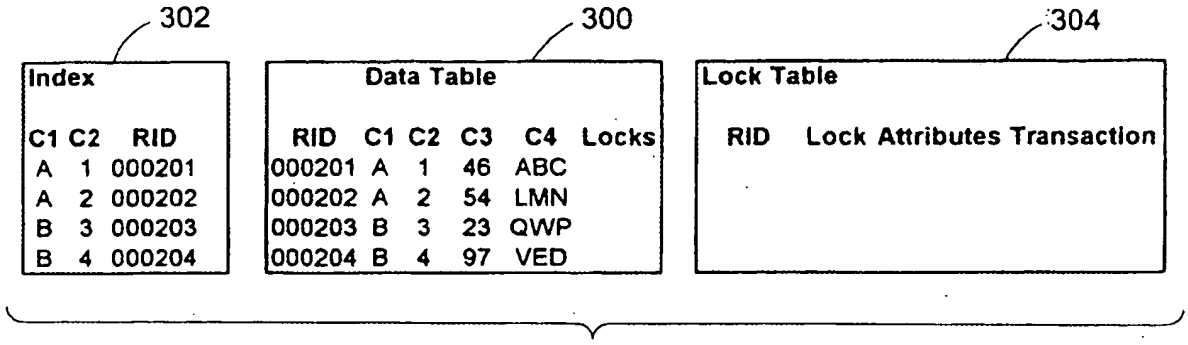

FIG. 3(A)
(PRIOR ART)

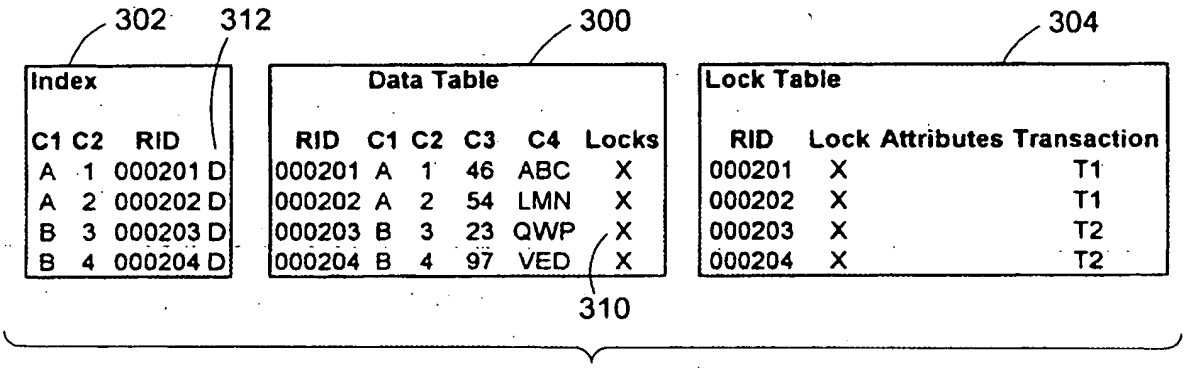

FIG. 3(B)
(PRIOR ART)

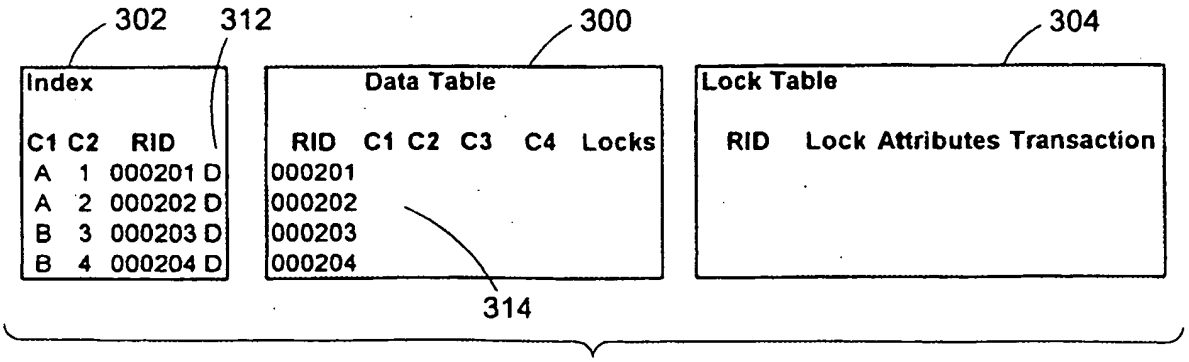

FIG. 3(C)
(PRIOR ART)

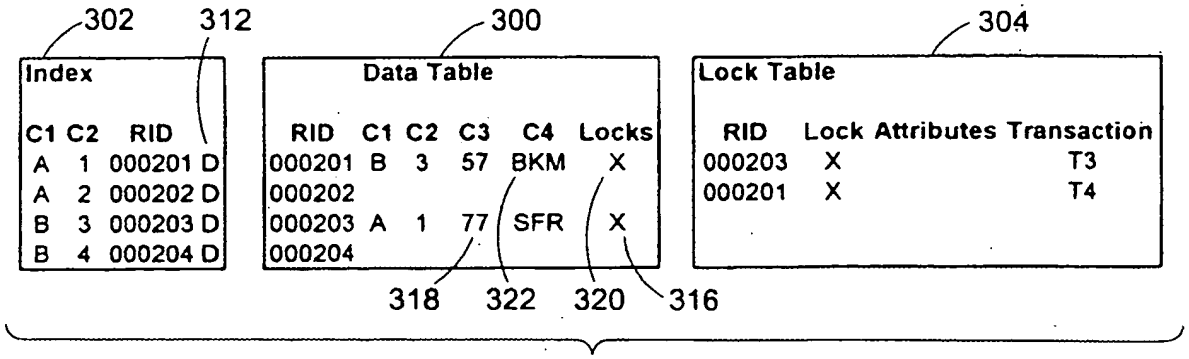

FIG. 3(D)
(PRIOR ART)

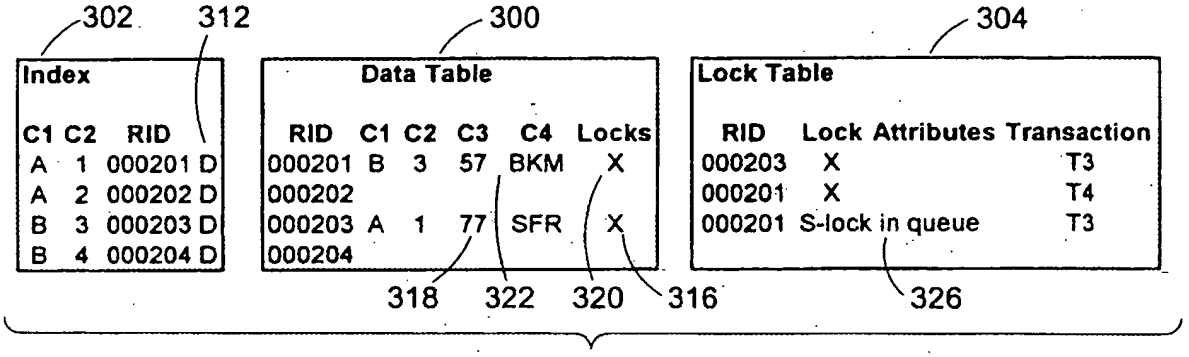

FIG. 3(E)
(PRIOR ART)

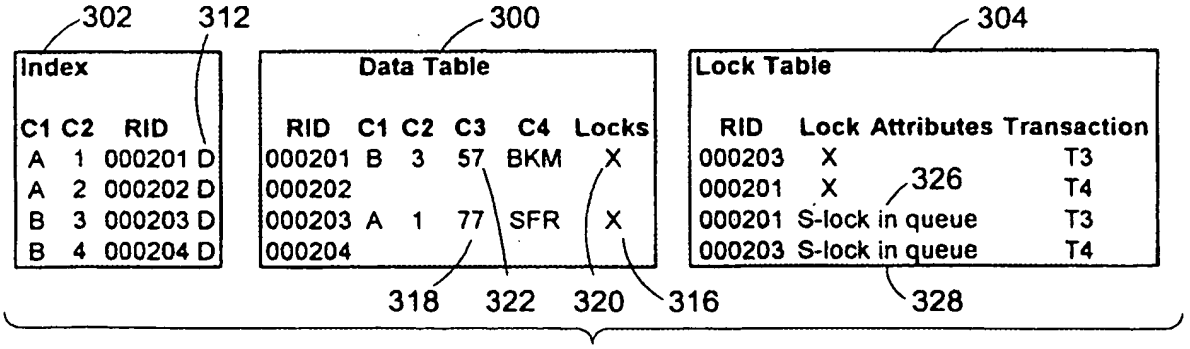

FIG. 3(F)
(PRIOR ART)

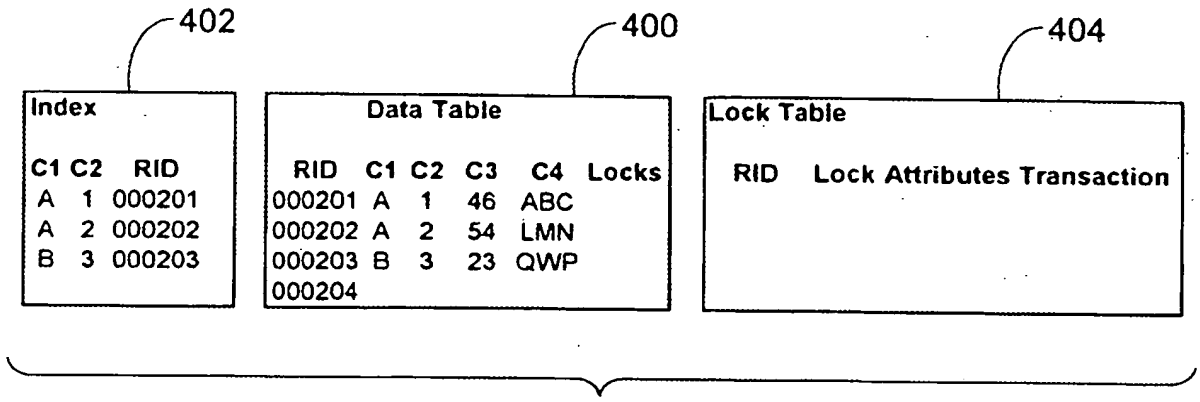

FIG. 4(A)

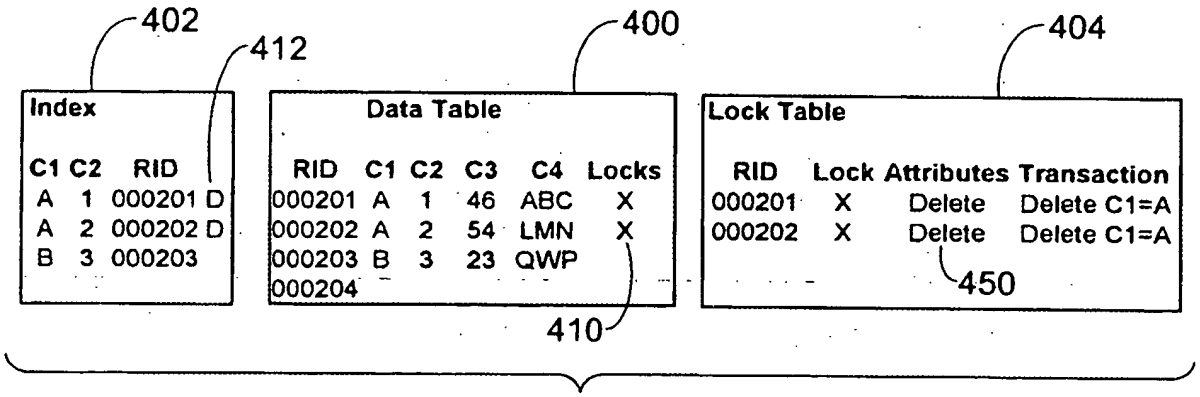

FIG. 4(B)

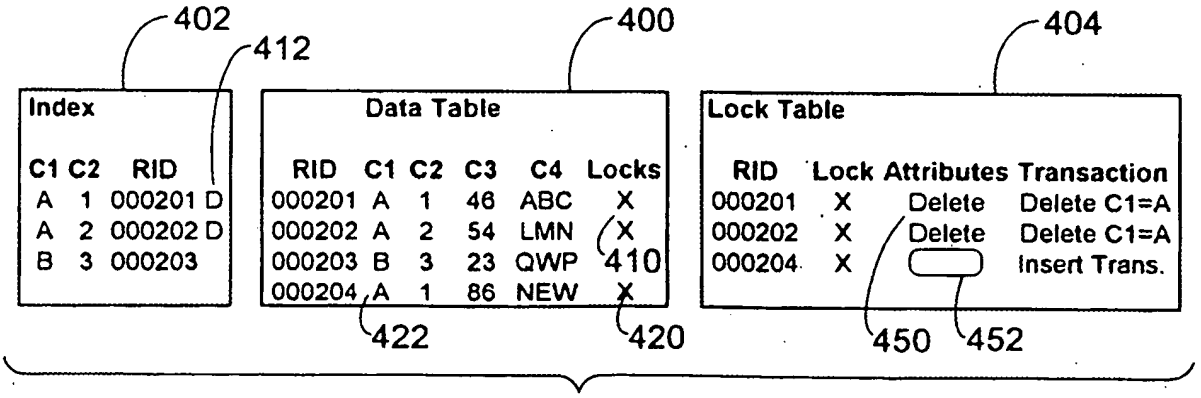

FIG. 4(C)

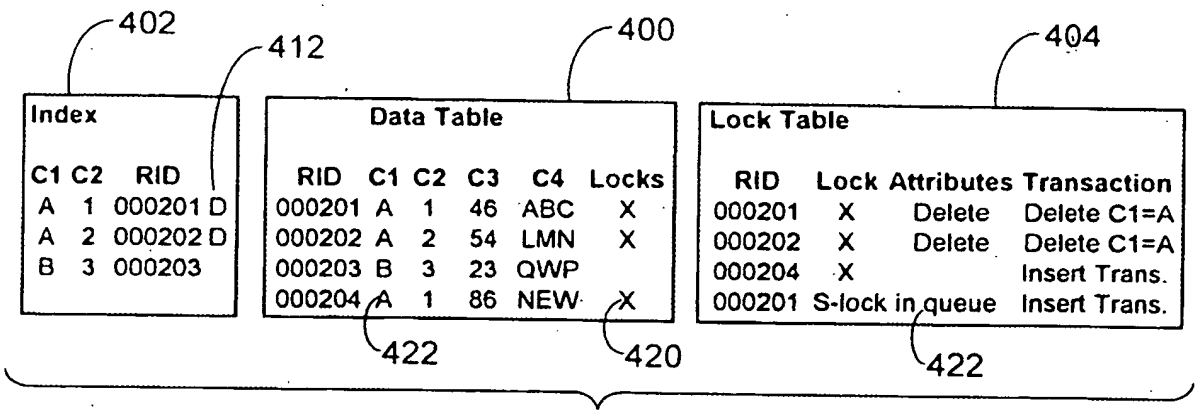

FIG. 4(D)

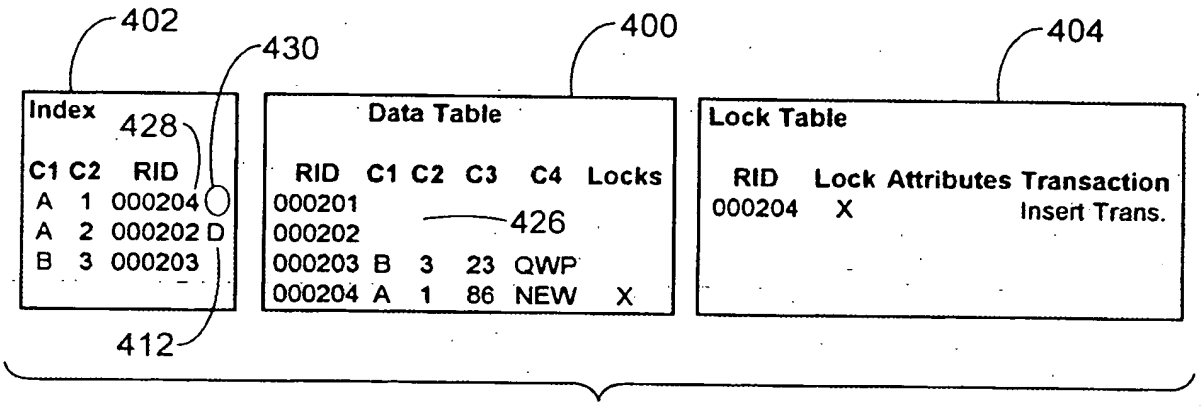

FIG. 4(E)

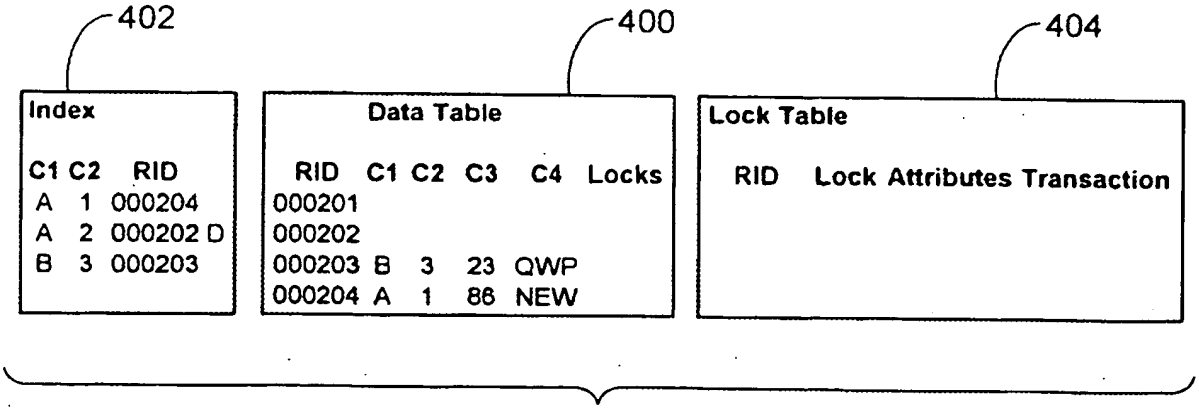

FIG. 4(F)

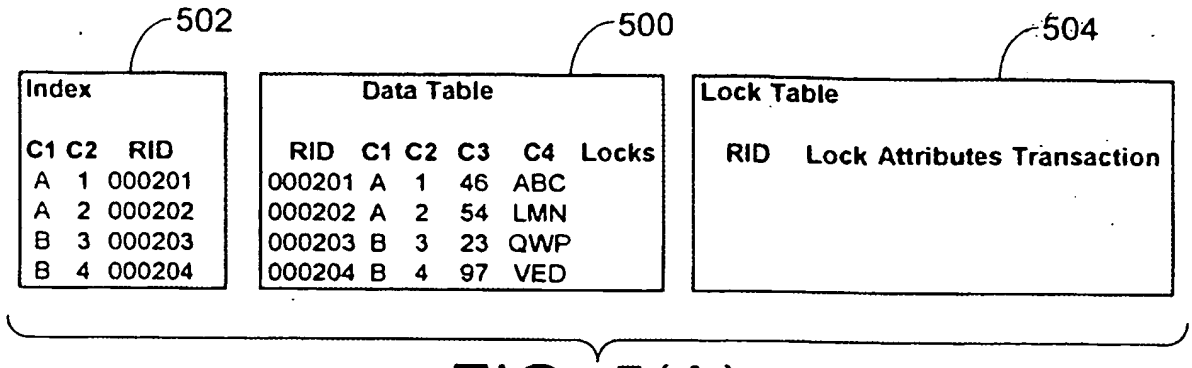

FIG. 5(A)

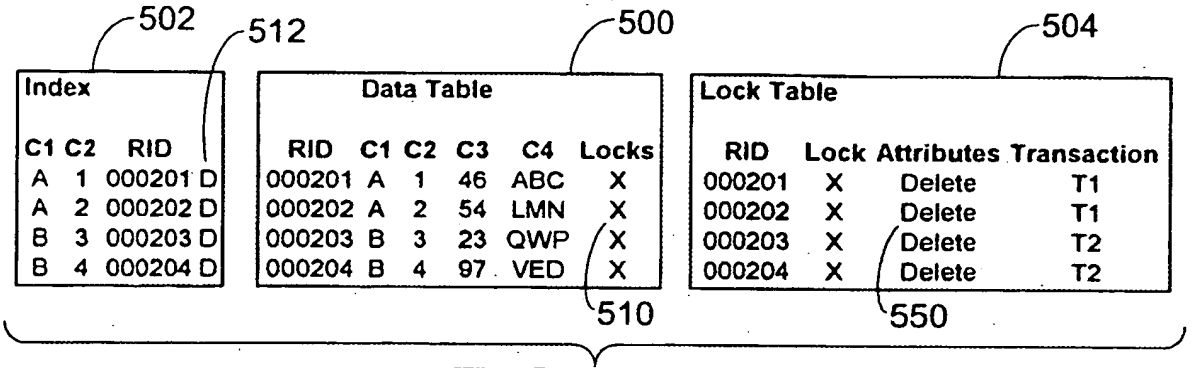

FIG. 5(B)

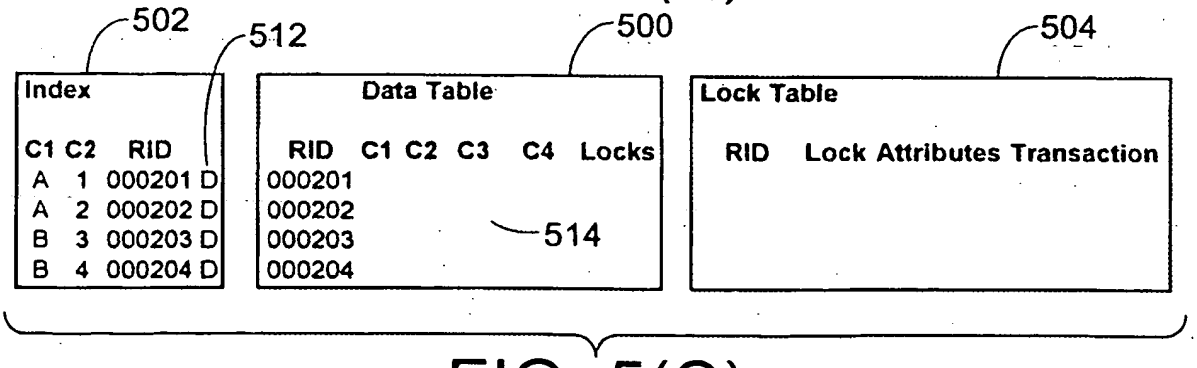

FIG. 5(C)

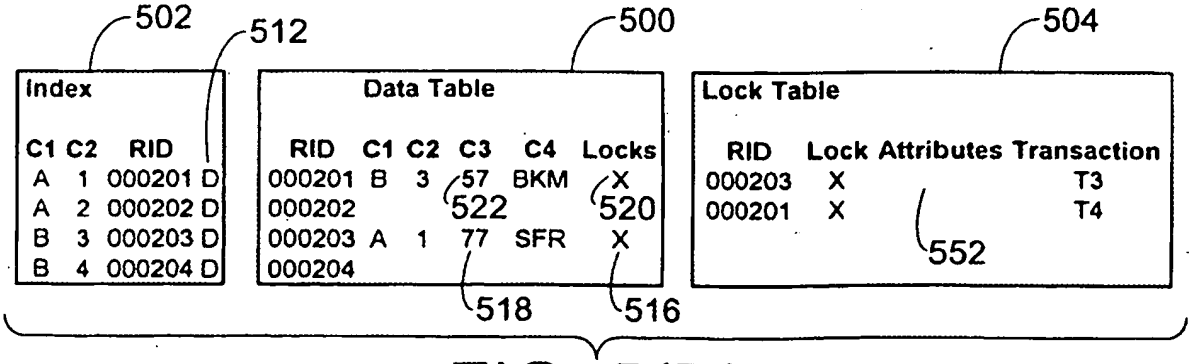

FIG. 5(D)

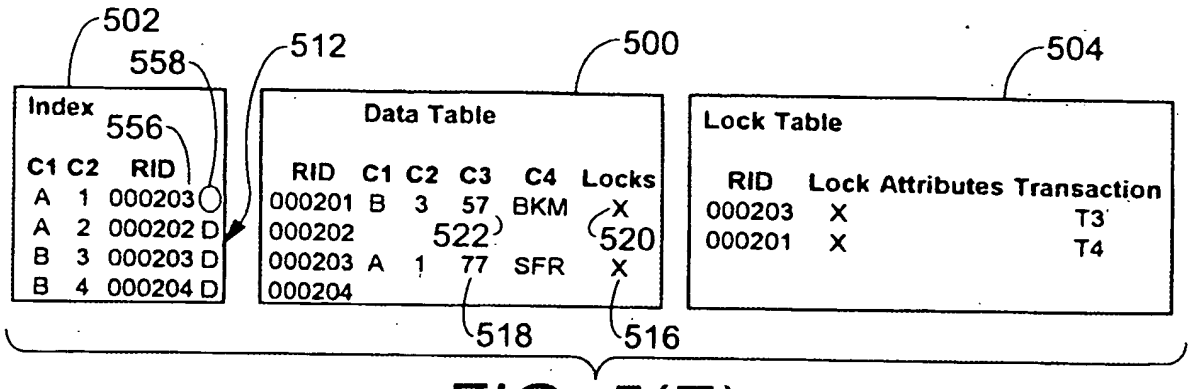

FIG. 5(E)

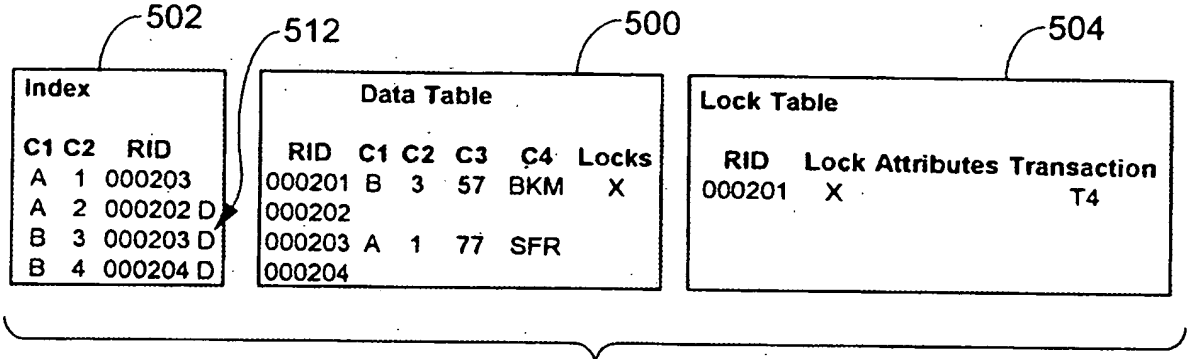

FIG. 5(F)

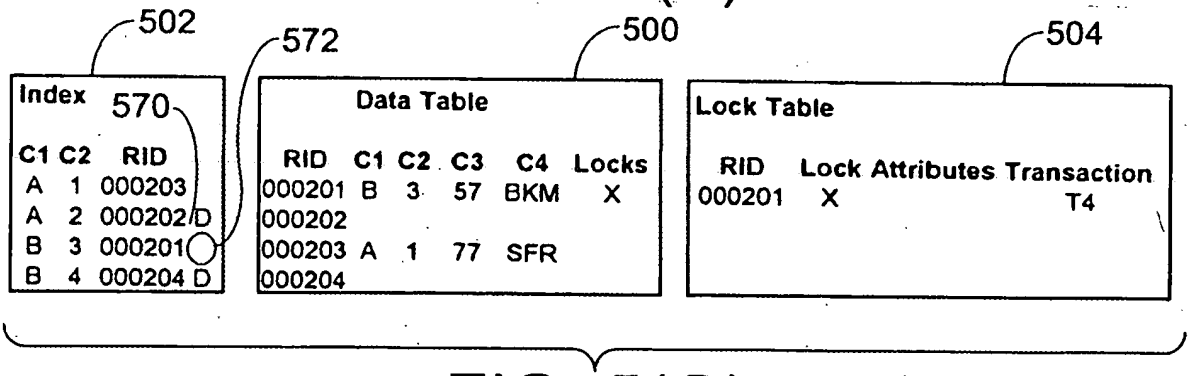

FIG. 5(G)

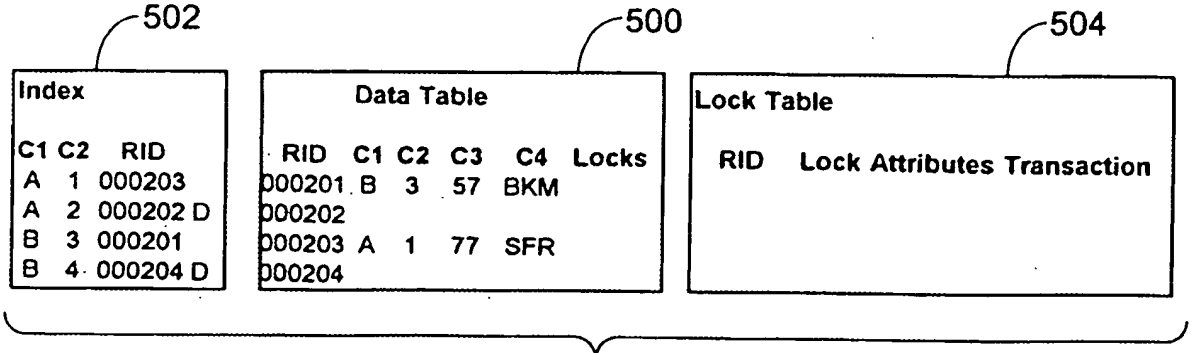

FIG. 5(H)

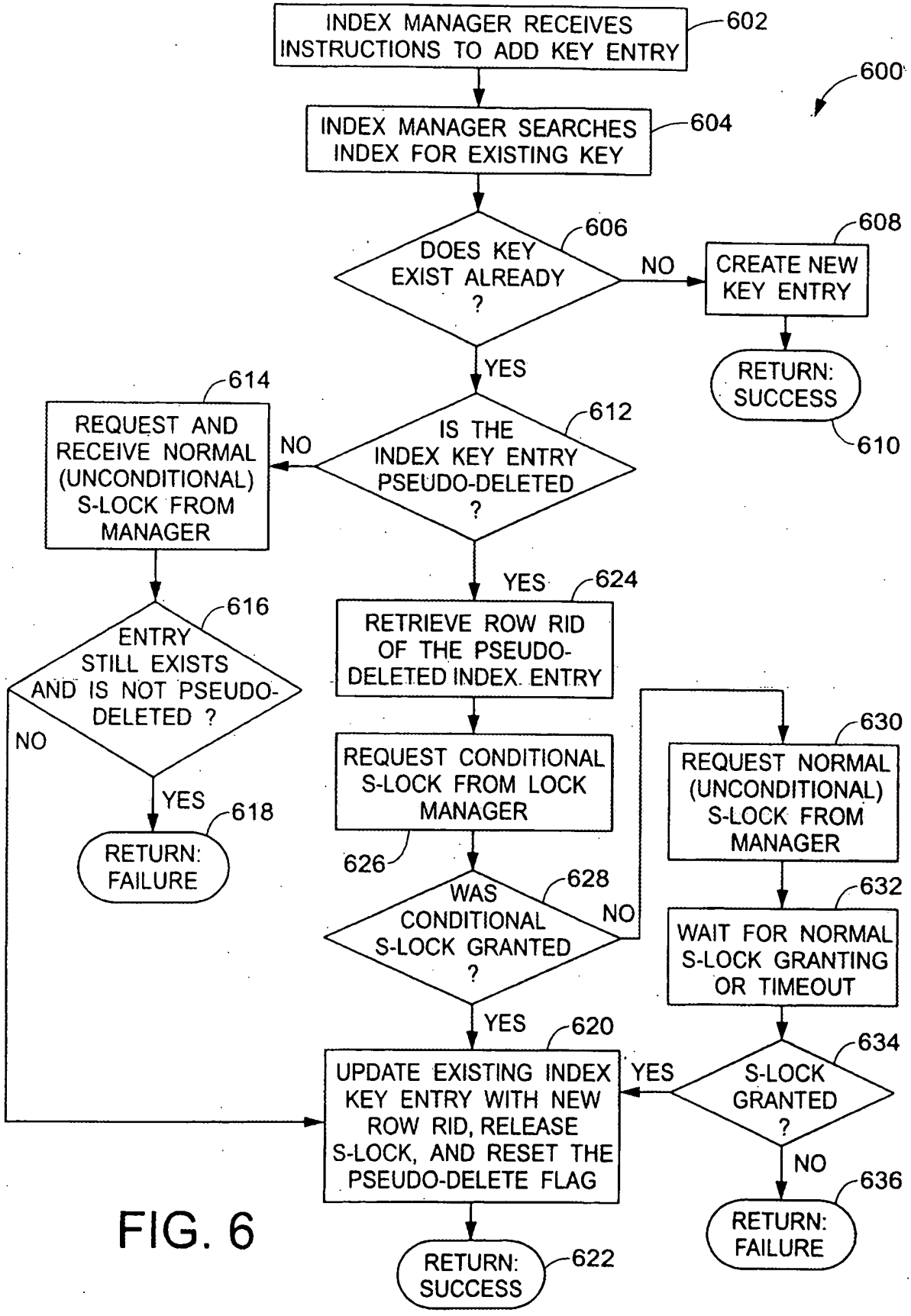
INDEX MANAGER RECEIVES INSTRUCTIONS TO ADD KEY ENTRY
602
600
INDEX MANAGER SEARCHES INDEX FOR EXISTING KEY
604
DOES KEY EXIST ALREADY ?
606
NO
CREATE NEW KEY ENTRY
608
RETURN: SUCCESS
610
YES
IS THE INDEX KEY ENTRY PSEUDO-DELETED ?
612
NO
REQUEST AND RECEIVE NORMAL (UNCONDITIONAL) S-LOCK FROM MANAGER
614
YES
RETRIEVE ROW RID OF THE PSEUDO-DELETED INDEX ENTRY
624
ENTRY STILL EXISTS AND IS NOT PSEUDO-DELETED ?
616
NO
YES
RETURN: FAILURE
618
REQUEST CONDITIONAL S-LOCK FROM LOCK MANAGER
626
WAS CONDITIONAL S-LOCK GRANTED ?
628
NO
YES
REQUEST NORMAL (UNCONDITIONAL) S-LOCK FROM MANAGER
630
WAIT FOR NORMAL S-LOCK GRANTING OR TIMEOUT
632
S-LOCK GRANTED ?
634
YES
NO
RETURN: FAILURE
636
UPDATE EXISTING INDEX KEY ENTRY WITH NEW ROW RID, RELEASE S-LOCK, AND RESET THE PSEUDO-DELETE FLAG
620
RETURN: SUCCESS
622

FIG. 6